ELECTRONIC DEVICE HAVING DISPLAY AND SURROUNDING TOUCH SENSITIVE BEZEL FOR USER INTERFACE AND CONTROL

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This is a continuation-in-part of U.S. patent application Ser. No. 11/367,749, filed Mar. 3, 2006 and entitled "Multi-Functional Hand-Held Device," which is incorporated herein by reference in its entirety, to which priority is claimed, and which claims priority to: (1) U.S. Provisional Patent Application No. 60/658,777, entitled "Multi-Functional Hand-Held Device," filed Mar. 4, 2005 and (2) U.S. Provisional Patent Application No. 60/663,345, entitle titled "Multi-Functional Hand-Held Device," filed Mar. 16, 2005, each of which is hereby incorporated by reference.

[0002] This application is also related to the following applications, which are all herein incorporated by reference: (1) U.S. patent application Ser. No. 10/188,182, entitled "Touch Pad for Handheld Device," filed on Jul. 1, 2002; (2) U.S. patent application Ser. No. 10/722,948, entitled "Touch Pad for Handheld Device," filed on Nov. 25, 2003; (3) U.S. patent application Ser. No. 10/643,256, entitled "Movable Touch Pad with Added Functionality," filed on Aug. 18, 2003; (4) U.S. patent application Ser. No. 10/654,108, entitled "Ambidextrous Mouse," filed on Sep. 2, 2003; (5) U.S. patent application Ser. No. 10/840,862, entitled "Multipoint Touch Screen," filed on May 6, 2004; (6) U.S. patent application Ser. No. 10/903,964, entitled "Gestures for Touch Sensitive Input Devices," filed on Jul. 30, 2004; (7) U.S. patent application Ser. No. 11/038,590, entitled "Mode-Based Graphical User Interfaces for Touch Sensitive Input Devices," filed on Jan. 18, 2005; and (8) U.S. patent application Ser. No. 11/057,050, entitled "Display Actuator," filed on Feb. 11, 2005, (9) U.S. patent application Ser. No. 11/115,539, entitled "Hand-Held Electronic Device with Multiple Touch Sensing Devices," filed Apr. 26, 2005.

FIELD OF THE DISCLOSURE

[0003] The subject matter of the present disclosure relates to an electronic device having a display and a surrounding touch sensitive bezel for user interface and control.

BACKGROUND OF THE DISCLOSURE

[0004] There exist today many types of hand-held electronic devices, each of which utilizes some sort of user interface. The user interface typically includes an output device in the form of a display, such as a Liquid Crystal Display (LCD), and one or more input devices, which can be mechanically actuated (e.g., switches, buttons, keys, dials, joysticks, joy pads) or electrically activated (e.g., touch pads or touch screens). The display is typically configured to present visual information such as text and graphics, and the input devices are typically configured to perform operations such as issuing commands, making selections, or moving a cursor or selector of the electronic device. Each of these well-known devices has considerations such as size and shape limitations, costs, functionality, complexity, etc. that must be taken into account when designing the hand-held electronic device. In most cases, the user interface is positioned on the front face (or front surface) of the hand-held device for easy viewing of the display and easy manipulation of the input devices.

[0005] **FIGS. 1A-1F** are diagrams of various hand-held electronic devices including for example a telephone **10**A (**FIG. 1A**), a PDA **10**B (**FIG. 1B**), a media player **10**C (**FIG. 1C**), a remote control **10**D (**FIG. 1D**), a camera **10**E (**FIG. 1E**), and a Global Positioning System (GPS) module **10**F (**FIG. 1F**). In each of these devices **10**, a display **12**, which is secured inside the housing of the device **10** and which can be seen through an opening in the housing, is typically positioned in a first region of the electronic device **10**. Each of these devices **10** also include one or more input devices **14**, which are typically positioned in a second region of the electronic device **10** next to the display **12**.

[0006] To elaborate, the telephone **10**A typically includes a display **12** such as a character or graphical display, and input devices **14** such as a number pad and in some cases a navigation pad. The PDA **10**B typically includes a display **12** such as a graphical display, and input devices **14** such as a stylus based resistive touch screen and buttons. The media player **10**C typically includes a display **12** such as a character or graphic display and input devices **14** such as buttons or wheels. The iPod® media player manufactured by Apple Computer, Inc. of Cupertino, California is one example of a media player that includes both a display and input devices disposed next to the display. The remote control **10**D typically includes an input device **14** such as a keypad and may or may not have a character display **12**. The camera **10**E typically includes a display **12** such as a graphic display and input devices **14** such as buttons. The GPS module **10**F typically includes a display **12** such as graphic display and input devices **14** such as buttons, and in some cases a joy pad.

[0007] Such prior art devices **10**A-**10**F often employ a user interface in conjunction with the display **12** and input device **14**. In one example, **FIG. 2A** shows an electronic device **20**, such as a portable media player. The electronic device **20** has a display **24** and an input device **26** according to the prior art. The display **22** can show various forms of information (e.g., menu items, song titles stored in memory, etc.) of a user interface. The display **24** and input device **26** used in conjunction with the user interface allows the user to make selections (e.g., select a song), to operate functions of the device (e.g., play, stop, or pause a song, etc.), and to perform other functions. In this device **20**, the input devices **26** is a "click wheel," such as used on an iPod® media player manufactured by Apple Computer, Inc. of Cupertino, California.

[0008] The electronic device **20** has a housing **22** that contains the display **24** and the input device **26**. The input device **26** typically requires a number of components, such as pressure pads, printed circuit board, integrated circuits, etc. Accordingly, the housing **22** for the electronic device **20** must typically be extended or enlarged beyond the size of the display **24** so that the electronic device **20** can accommodate the components of the input device **26**. Consequently, due to the required components for the input device **26**, the size of the housing **22** may in some cases be larger than is actually required to house just the display **24** and any other necessary components (i.e., processor, memory, power supply, etc.) for the device **20**. In addition, placement of the display **22** and the input device **26** typically accommodate only one orientation of the device **20** when held by a user.

[0009] In another example, **FIG. 2B** shows another electronic device **30** having a display **34** and an input device **36**